

REMARKS

Status of the Claims

Claims 2-8, 12, 14-27, 29-32 and 34-38 are pending in this application. Claims 28 and 33 have been canceled. No claims have been added. Claim 23 has been amended to recite that the water and oil repellant is applied to a substrate. Claim 24 has been amended to further define the dehydrating step to recite that the substrate is dehydrated after applying the water and oil repellant. No new matter has been added by the above amendments.

Claim Objections

The Examiner rejects claims 23, 24, 28 and 33 for improper dependency. Applicants amend the claims to remove any improper dependency. As such, the objection should be withdrawn.

Rejection under 35 USC 112, second paragraph

The Examiner rejects claims 2-8, 12, 14-22, 25-27, 29-32 and 37 as indefinite. Applicants traverse the rejection and respectfully request the withdrawal thereof.

The Examiner specifically rejects claims 2, 37 and 38 because it is allegedly unclear what "linear or cyclic" modifies.

Applicants submit that "linear or cyclic" modifies only silicone. The esters, diesters, ketones and ethers are not linear or cyclic. As such, the rejection should be withdrawn.

The Examiner specifically rejects claim 12 because it is allegedly unclear what "glycol" modifies. Applicants submit that glycol only modifies ethers. As such, the rejection should be withdrawn.

Rejection under 35 USC §102(b) and alternatively §103(a)

The Examiner rejects claims 2-8, 12, 14-22, 25-27, 29-32 and 34-37 as anticipated by or obvious over Misaizu et al. 5,068,295 (Misaizu '295). Applicants traverse the rejection and respectfully request the withdrawal thereof.

Misaizu '295 discloses various sub-combinations containing less than all the components (I), (II), (III), (IV) and (V). However, Misaizu '295 does not disclose or suggest any examples containing the combination of all the five repeating units (I), (II), (III), (IV) and/or (V) as defined by claim 2. Moreover, Misaizu '295 does not disclose or suggest the use of glycol ethers or diesters. In as much as Misaizu '295 fails to disclose or suggest the claimed combination of (I)-(IV) and/or (V) and glycol

ethers and diesters, the present invention is not anticipated by or obvious over Misaizu '295. As such, the rejection should be withdrawn.

The Examiner also rejects claim 38 as obvious over Misaizu '295. Applicants traverse the rejection and respectfully request the withdrawal thereof.

Applicants rely on the arguments above to traverse the rejection. In as much as Misaizu '295 fails to disclose or suggest the claimed combination of (I)-(IV) and/or (V) and glycol ethers and diesters, the present invention is not anticipated by or obvious over Misaizu '295. As such, the rejection should be withdrawn.

The Examiner also rejects claims 34-36 as anticipated by or obvious over JP A-2-15695 (JP '695). Applicants traverse the rejection and respectfully request the withdrawal thereof.

Applicants submit that JP '695 fails to disclose or suggest all the elements of the present invention. JP '695 discloses a polymerizable compound having a fluoroalkyl or fluoroalkenyl group, which is similar to monomer unit (I) of the present invention. JP '695 also discloses the monomer units (III), (IV) and (V). However,

JP '695 fails to disclose or suggest the combination of (I)-(IV) and/or (V).

The Examiner cites to pages 3-5 of JP '695. Applicants submit herewith translations of pages 3-5. The translation reveals that the present invention is not disclosed or suggested by JP '695. JP '695 fails to disclose the polymer of claims 36-38.

Advantages of the Present Invention

The present invention has excellent water- and oil-repellency, even though the present invention is water based and not organic solvent based. The present invention is able to achieve these excellent properties by the specific combination of (I)-(IV) and/or (V) to create the polymer. Then the polymer is combined with the film forming auxiliary. The cited art fails to disclose this combination. The cited references also fail to disclose the advantages at room temperature drying to be gained by making the combination.

For the foregoing reasons, Applicants submit that the anticipation and obviousness rejections should be withdrawn.

Conclusion

As Applicants have addressed and overcome all rejections in the Office Action, Applicants respectfully request that the rejections be withdrawn and that the claims be allowed.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Kecia Reynolds (Reg. No. 47,021) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

Pursuant to 37 C.F.R. § 1.17 and 1.136(a), Applicants respectfully petition a one (1) month extension of time for filing a response in connection with the present application. The required fee of \$110.00 is attached hereto.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees

Appl. No. 09/355,673


required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made
Partial Translation of JP-A-2-15695

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS

Claims 28 and 33 were canceled.

Please amend the claims as follows:

23. (Four times amended) A method for imparting water and oil repellency to a substrate comprising applying on said substrate the water and oil repellent of claim 17 [a composition as claimed in any one of claims 1 to 14 on said substrate] by spraying, coating or dipping [by using a water and oil repellent product as claimed in any one of claims 18 to 20 and 22].

24. (Amended) A method [according to claim 23,] for imparting water and oil repellency to a substrate according to claim 23 which further comprises dehydrating said substrate after applying the water and oil repellent [the treatment by the method as claimed in claim 23].

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Partial translation of JP-A-2-15695 (JP15695)

(Page 3, right upper column, line 6 to page 5 left upper column, line 13 are translated)

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(Problems to be Solved by the Invention)

An object of the present invention is to provide an electronic part having extremely excellent moisture-proof property even though having a thin coated layer.

(Means for Solving Problems)

The present invention provides a moisture-proof electronic part having a surface coated with a film comprising a composition a polymer having a fluoroalkyl group or fluoroalkenyl group and a functional group, or a functional group-containing compound and/or a crosslinking aid, and a moisture-proof electronic part having a surface coated with a film comprising a hydrocarbon resin coated on the film comprising said composition.

The surface to be coated according to the present invention is, for example, a surface of an electronic part such as semiconductor substrate; an oxide layer or characteristics-stabilizing layer coated on said surface; and a hydrocarbon film coated on said surface and said layers.

A copolymer of a polymerizable compound having a fluoroalkyl or fluoroalkenyl group with a polymerizable compounds having a functional group and a copolymer of said copolymerizable compound with a compound copolymerizable with said copolymerizable compound can be normally used as the polymer having the fluoroalkyl or fluoroalkenyl group and the functional group in the present invention. Examples of the functional group are an alkoxy group having 1 to 6 carbon atoms, a silyl group substituted with acetoxy or methoxyethoxy group, an isocyanate group, an isocyanate group added with an alcohol group having 1 to 6 carbon atoms or a phenol group, a hydroxyl group and a glycidyl group.

Examples of the polymerizable compound having the fluoroalkyl or

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fluoroalkenyl group are an acrylate ester or alpha-substituted acrylate ester having a fluoroalkyl or fluoroalkenyl group. Specific examples thereof are the compounds having the following general formulas (1) to (3):



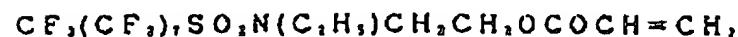
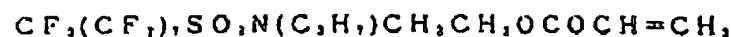
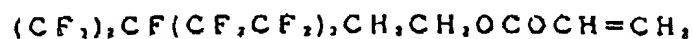
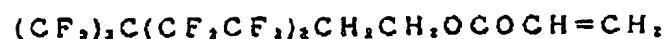
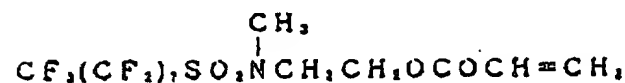
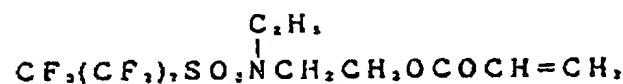
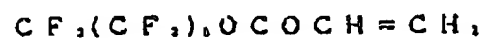
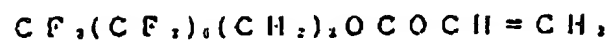
wherein Rf is a fluoroalkyl or fluoroalkenyl group having 4 to 20 carbon atoms, R¹ is a hydrogen atom, a methyl group, a fluorine atom or a trifluoromethyl group, R² is an alkylene group having 1 to 10 carbon atoms or -CH₂CH(OR³)CH₂-, R³ is a hydrogen atom or an acyl group having 1 to 11 carbon atoms, R⁴ is an alkylene group having 1 to 10 carbon atoms, and R⁵ is a hydrogen atom or an alkyl group having 1 to 10 carbon atoms.

Examples of the fluoroalkyl group are a perfluoroalkyl group and an omega-hydroperfluoroalkyl group. The perfluoroalkyl group is preferable. The fluoroalkenyl group is preferably a perfluoroalkenyl group.

Specific examples of the acrylate ester or alpha-substituted acrylate ester of the above-mentioned formulas (1) to (3) are as follows:

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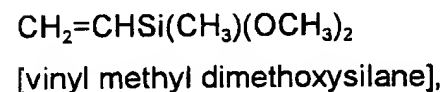
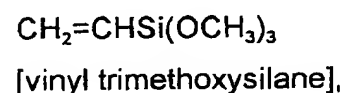
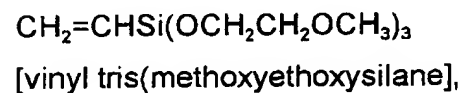
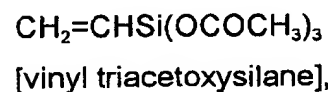
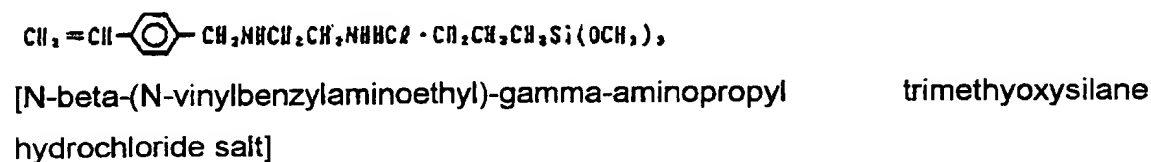
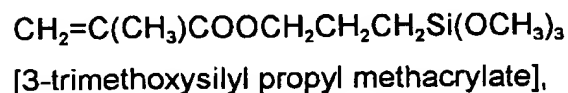
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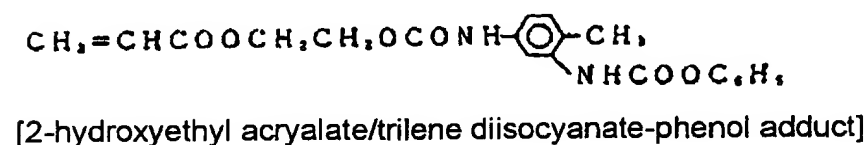
and

acrylates having a methyl group, a fluorine atom or a fluoromethyl group substituted for alpha-position hydrogen of these acrylates.

Examples of the copolymerizable compound having the functional group are:



isocyanatoethyl methacrylate,



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2-hydroxyethyl (meth)acrylate,

2-hydroxy-3-chloropropyl (meth)acrylate, and
glycidyl (meth)acrylate,

which are widely exemplified and are used alone or in combination thereof.

A compound copolymerizable with the polymerizable compound having the fluoroalkyl or fluoroalkenyl group and the polymerizable compound having the functional group can be widely selected, so far as the performances are deteriorated. Examples of the copolymerizable compound widely include ethylene, vinyl acetate, vinyl chloride, vinyl fluoride, vinylidene halide, styrene, acrylic acid and alkyl esters thereof, methacrylic acid and alkyl esters thereof, poly(oxyalkylene) acrylate, poly(oxyalkylene) methacrylate, acrylamide, methacrylamide, diacetoneacrylamide, methylolated diacetoneacrylamide, N-methylol acrylamide, vinyl alkyl ether, perfluoroalkenyl vinyl ether, halogenated alkyl vinyl ether, vinyl alkyl ketone, butadiene, isoprene, chloroprene, glycidyl acrylate, glycidyl methacrylate, benzyl acrylate, benzyl methacrylate, cyclohexyl acrylate, cyclohexyl methacrylate, maleic acid and alkyl esters thereof, tetrahydrofurfuryl acrylate, tetrahydrofurfuryl methacrylate, aziridyl acrylate, aziridyl methacrylate, dimethylaminoethyl acrylate and dimethylaminoethyl methacrylate. These are used alone or in combination.

In the present invention, an organic solution of the above-mentioned polymer having the fluoroalkyl or fluoroalkenyl group and the functional group dissolved in an organic solvent is coated on the surface of the electronic part to form the coating film.